



Electric Power Industry

Meeting the Y2K Challenge

Electric Utilities Y2K Assessment
FCC Forum on Tower Lighting and Year 2000
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Power by Association



Electric Power Y2K Issues to Date

- ⦿ Y2K issues are fewer going from generation to transmission, then to distribution
- ⦿ Utility control centers are the areas of greatest digital and telecommunications usage
- ⦿ Few date interpretation problems found so far
 - There are no Grid-wide problems
 - Most problems are in the nuisance category



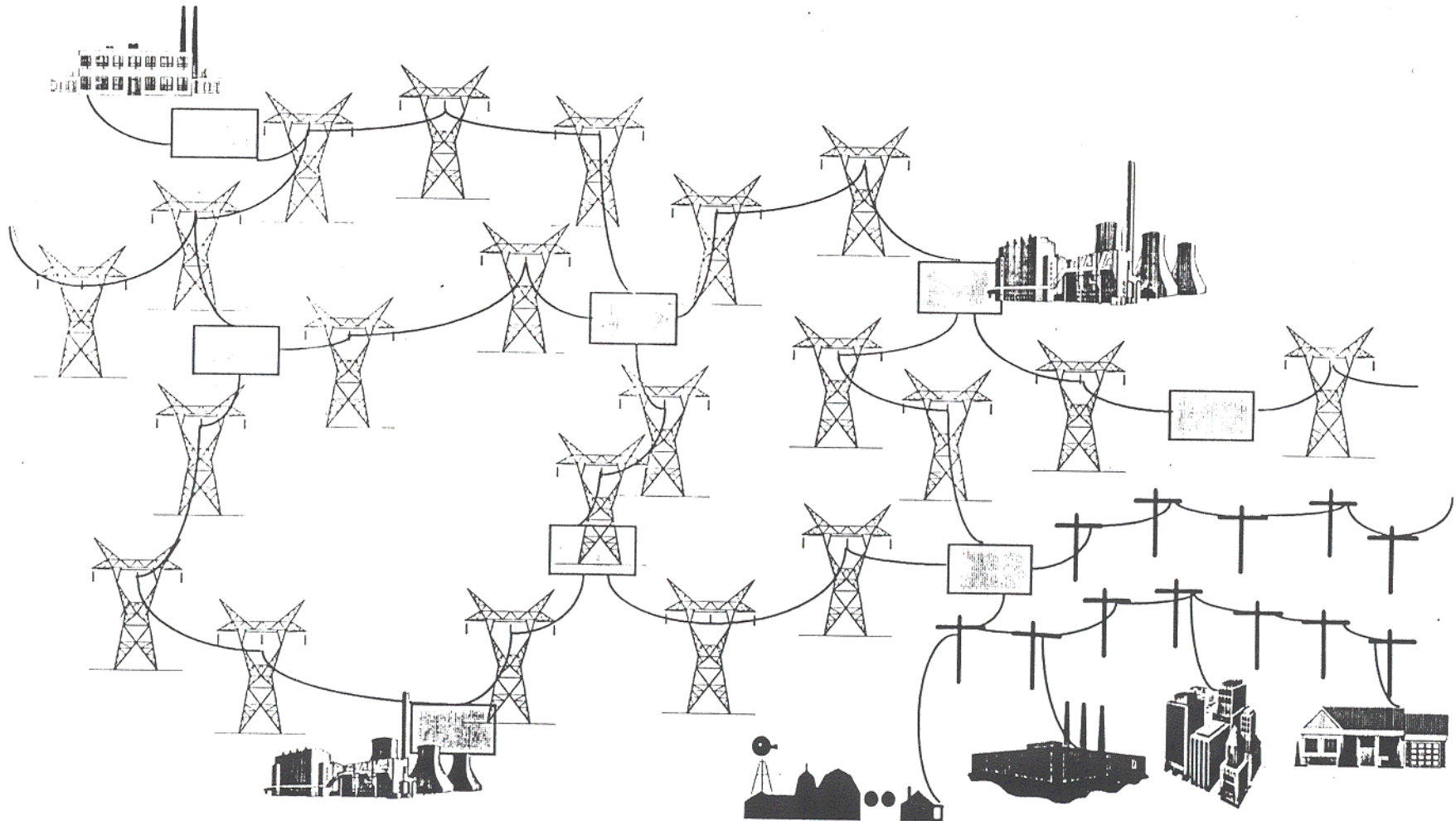
Electric Power Y2K Issues to Date

- Embedded Chips -

⊙ Gartner Group analysis 10/98:

- “Warnings about embedded chips may have been overdone. Embedded systems will have limited effect on year 2000 problems, and we will see a minimal number of failures from these devices.’ ... Only 1 in 100,000 free-standing microcontroller chips are likely to fail. Those that do fail will fail at the millennium, and the majority of these will only fail once....”

Generation - Transmission - Distribution Overview

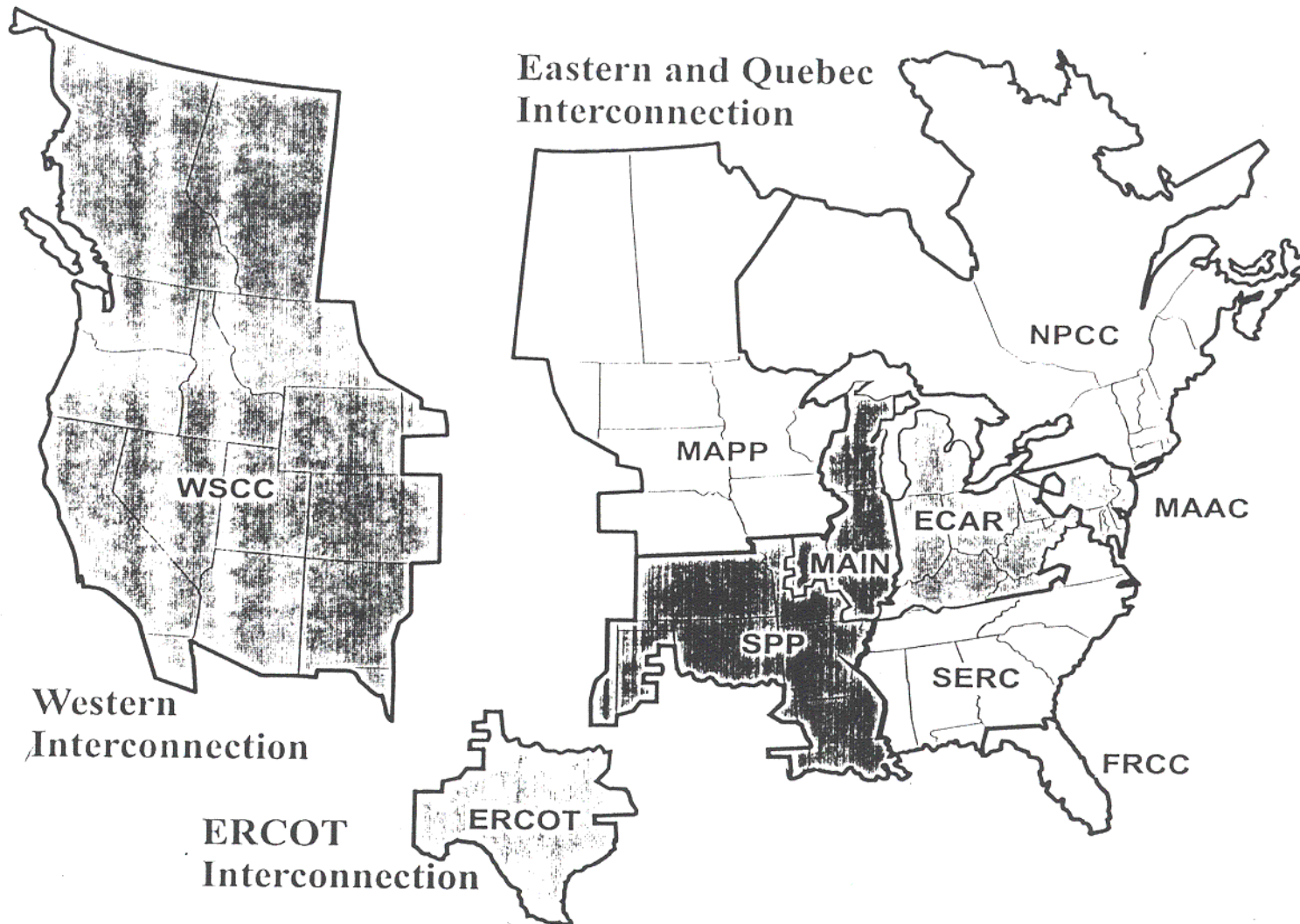




Electric Power System Characteristics

- ⦿ Electrical systems are mainly wires and mechanical devices
- ⦿ Much of the system is either analog, electro-mechanical or manual, especially for transmission & distribution lines
- ⦿ Little dependence on digital controls, especially in nuclear plants

Electric Power Grid and Interconnections





Characteristics of the Grid

- Actively managed 7x24 —
generation & load must balance
- Contingency plans & procedures
always in place
- Reserve capacity always available
and can be increased



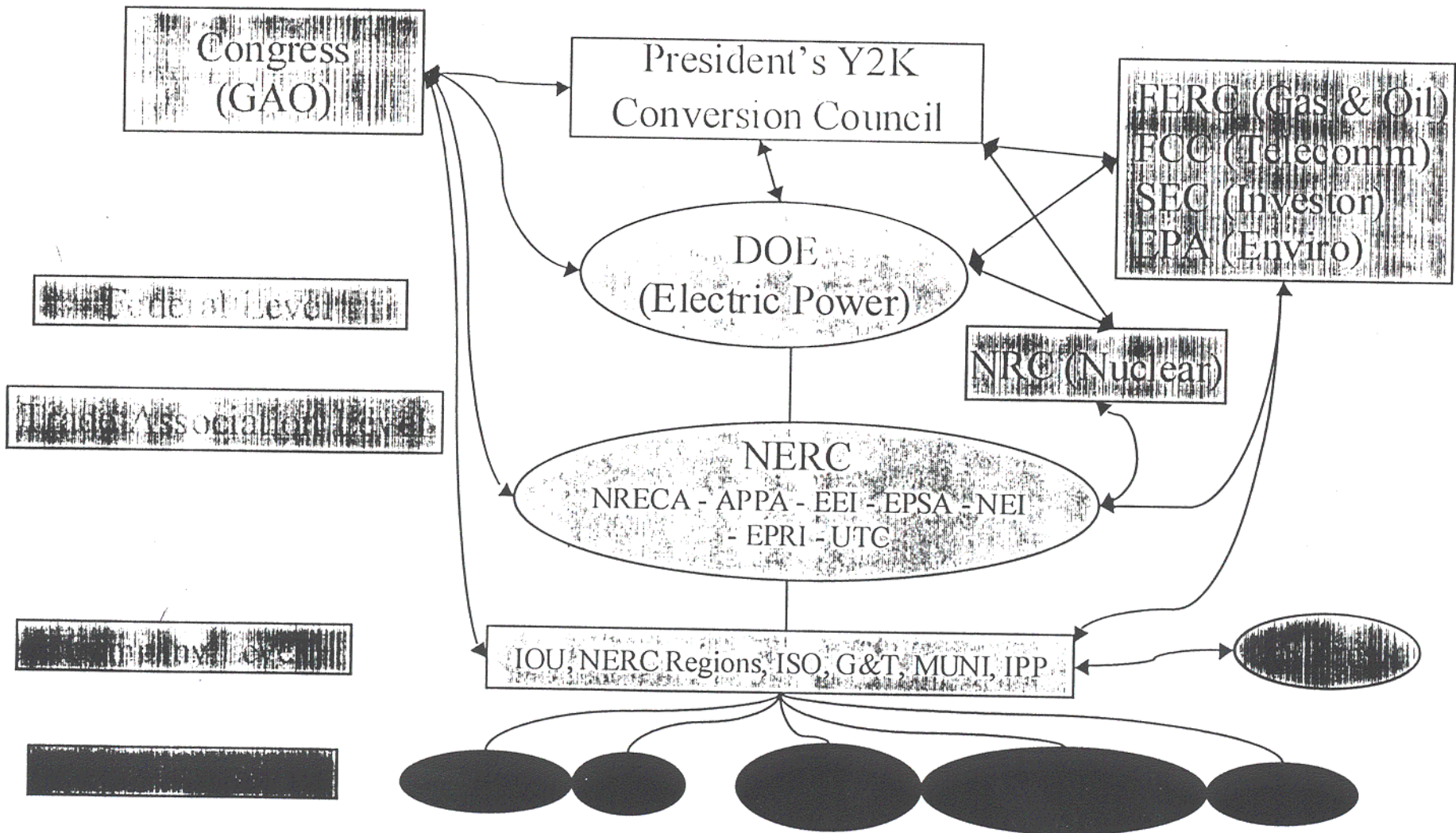
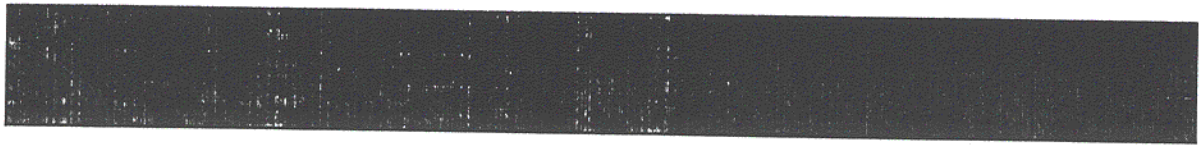
Government Agencies

- DOE - Department of Energy
- NRC - Nuclear Regulatory Commission
- FERC - Federal Energy Regulatory Commission
- FCC - Federal Communications Commission
- SEC - Securities and Exchange Commission
- EPA - Environmental Protection Agency
- GAO - Government Accounting Office



Industry Participants

- About 3200 electric-utility entities —
about 200 affect the Grid, and
about 3000 are primarily Distribution
- EEI is working with:
 - NERC - North American Electric Reliability Council
 - APPA - American Public Power Association
 - NRECA - National Rural Electric Cooperative Association
 - NEI - Nuclear Energy Institute
 - EPSA - Electric Power Supply Association
 - UTC, The Telecommunications Association
 - EPRI - Electric Power Research Institute
 - The Canadian Electric Association





NERC Assessment Effort

- Confidential information on programs & status collected from individual companies
- Analyzed & summarized to form overall quarterly assessments of entire electric power system, generation to distribution
- Process includes all NERC regional coordinators and members of trade-associations, as well as non-members
- CEOs and Y2K program managers are involved and supportive



NERC Assessment Process

- Assessment process began in July with Generation & Transmission
- Distribution & IT/business systems added in August
- Grid-supporters report monthly, others report quarterly



NERC Assessment Reports

- Initial assessment provided to DOE September 17, 1998
- Quarterly through 2^d Q-1999
- Public process — reports and assessment survey forms available at:
www.EEI.ORG and
www.NERC.COM



September Report Participation

- Greater than 75% overall industry participation in first NERC assessment:
 - ◆ 160 of 200 bulk operating entities
 - ◆ 2,200 of 3,000 distribution entities
 - ◆ 84% of system peak load
 - ◆ 77% of all non-nuclear generation
- 100% of nuclear electric industry reporting through NEI, 74% through the NERC process



September Report Findings

Cautious Optimism:

- ◉ 28% of testing already complete:
 - ◆ Minimal impacts on operations
 - ◆ No generic, system-wide problems
 - ◆ No nuclear safety problems
 - ◆ Impacts appear likely to continue less than anticipated
- ◉ Y2K operating risks can be effectively mitigated, with
 - ◆ Continued work on assessment and remediation
 - ◆ Properly coordinated contingency planning



September Report Recommendations

- ⦿ Industry should accelerate its current pace of work:
 - ◆ Completion of Remediation and Testing by May 31, 1999
 - ◆ Inventory and Assessment completed by Oct 31, 1998
 - ◆ All Mission Critical systems and components Y2K Ready by June 30, 1999
- ⦿ Contingency planning and preparations to be based on more-probable, and credible worst-case scenarios, to allow “Defense-In-Depth”



Remaining Work

- Finalizing remediation & testing, and cooperative testing — major testing planned Spring & Fall '99
- Information from suppliers and telecommunication service providers — telecomm testing in planning
- Contingency planning, especially with larger customers and emergency service providers



Other Reports

- January report will indicate that much work has been done during the traditional Fall, off-peak maintenance season
- Contingency planning initial drafts are due by the end of the year — the NERC guide is available at < www.NERC.com >
- Guides for testing and remediation are available from APPA at < www.APPAnet.org > and NRECA at < www.NRECA.org >